

Arl15 Cas9-CKO Strategy

Designer:

Jing Jin

Reviewer:

Yang Zeng

Design Date:

2019-11-16

Project Overview

Project Name

Arl15

Project type

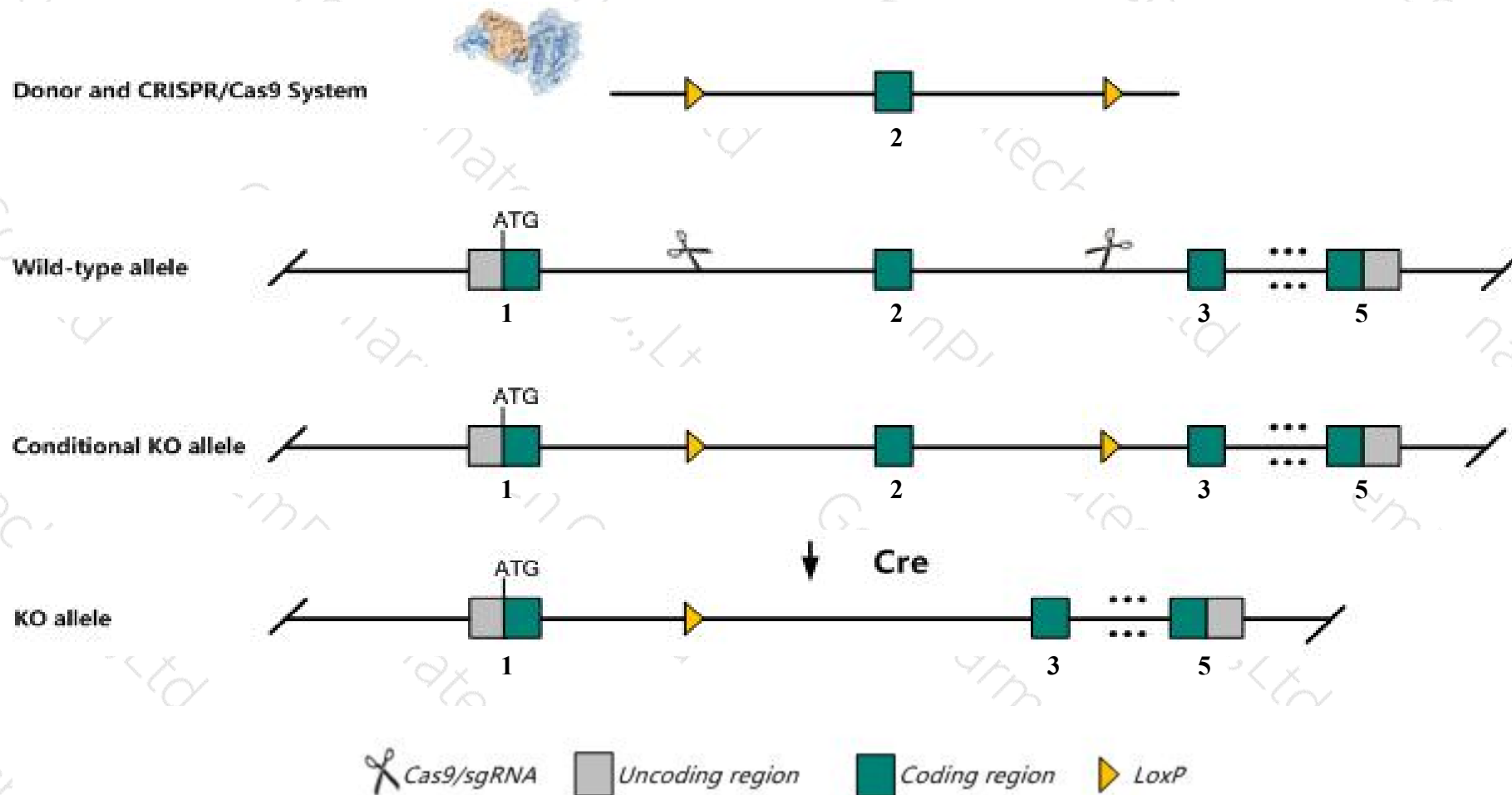
Cas9-CKO

Strain background

C57BL/6JGpt

Conditional Knockout strategy

This model will use CRISPR/Cas9 technology to edit the *Arl15* gene. The schematic diagram is as follows:



Technical routes

- The *Arl15* gene has 3 transcripts. According to the structure of *Arl15* gene, exon2 of *Arl15-201* (ENSMUST00000091201.6) transcript is recommended as the knockout region. The region contains 145bp coding sequence. Knock out the region will result in disruption of protein function.
- In this project we use CRISPR/Cas9 technology to modify *Arl15* gene. The brief process is as follows: sgRNA was transcribed in vitro, donor vector was constructed. Cas9, sgRNA and Donor were microinjected into the fertilized eggs of C57BL/6JGpt mice. Fertilized eggs were transplanted to obtain positive F0 mice which were confirmed by PCR and sequencing. A stable F1 generation mouse model was obtained by mating positive F0 generation mice with C57BL/6JGpt mice.
- The flox mice was knocked out after mating with mice expressing Cre recombinase, resulting in the loss of function of the target gene in specific tissues and cell types.

Notice

- The *Arl15* gene is located on the Chr13. If the knockout mice are crossed with other mice strains to obtain double gene positive homozygous mouse offspring, please avoid the two genes on the same chromosome.
- This Strategy is designed based on genetic information in existing databases. Due to the complexity of biological processes, all risk of loxp insertion on gene transcription, RNA splicing and protein translation cannot be predicted at existing technological level.

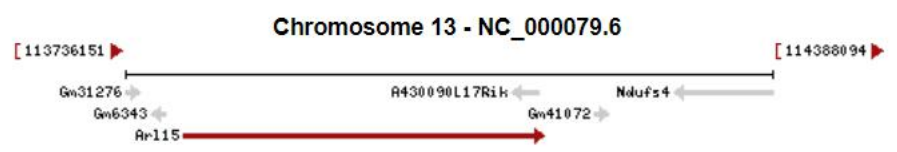
Gene information (NCBI)

Arl15 ADP-ribosylation factor-like 15 [*Mus musculus* (house mouse)]

Gene ID: 218639, updated on 12-Aug-2019

Summary

- Official Symbol** Arl15 provided by MGI
- Official Full Name** ADP-ribosylation factor-like 15 provided by MGI
- Primary source** MGI:MGI:2442308
- See related** Ensembl:ENSMUSG00000042348
- Gene type** protein coding
- RefSeq status** VALIDATED
- Organism** [Mus musculus](#)
- Lineage** Eukaryota; Metazoa; Chordata; Craniata; Vertebrata; Euteleostomi; Mammalia; Eutheria; Euarchontoglires; Glires; Rodentia; Myomorpha; Muroidea; Muridae; Murinae; Mus; Mus
- Also known as** Arfrp2; A430036I03; C230032K13Rik
- Expression** Ubiquitous expression in CNS E14 (RPKM 3.6), CNS E18 (RPKM 3.3) and 28 other tissues [See more](#)
- Orthologs** [human](#) [all](#)

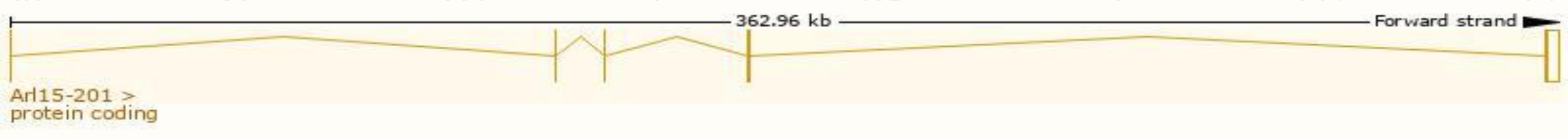


Transcript information (Ensembl)

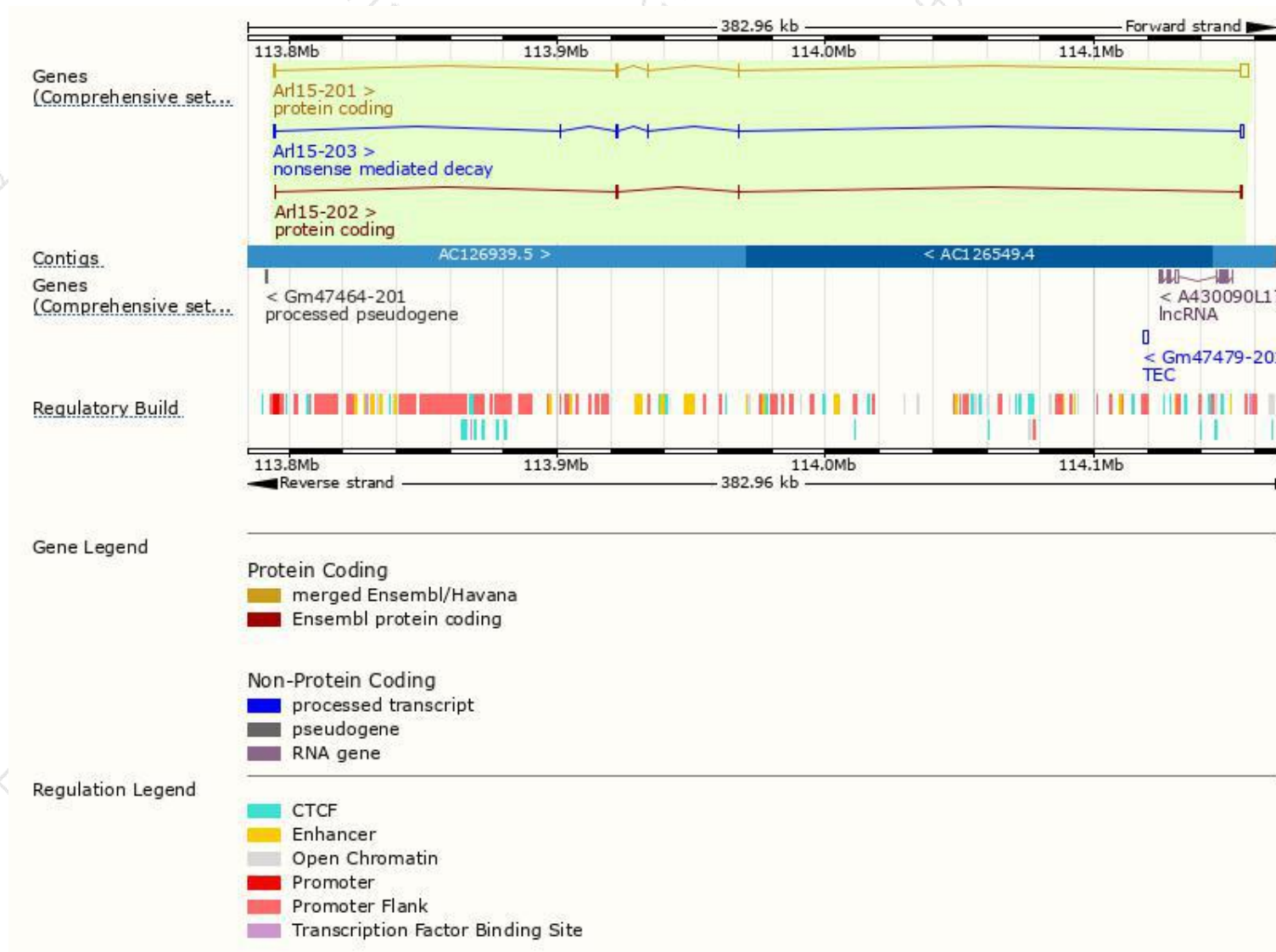
The gene has 3 transcripts,all transcripts are shown below:

Name	Transcript ID	bp	Protein	Translation ID	Biotype	CCDS	UniProt	Flags
Arl15-201	ENSMUST000000091201.6	3364	204aa	ENSMUSP00000088740.6	Protein coding	CCDS36785	Q8BGR6	TSL:1 GENCODE basic APPRIS P1
Arl15-202	ENSMUST000000224068.1	1002	184aa	ENSMUSP000000153127.1	Protein coding	-	B7ZN40	GENCODE basic
Arl15-203	ENSMUST000000224858.1	1966	56aa	ENSMUSP000000153570.1	Nonsense mediated decay	-	A0A286YE84	-

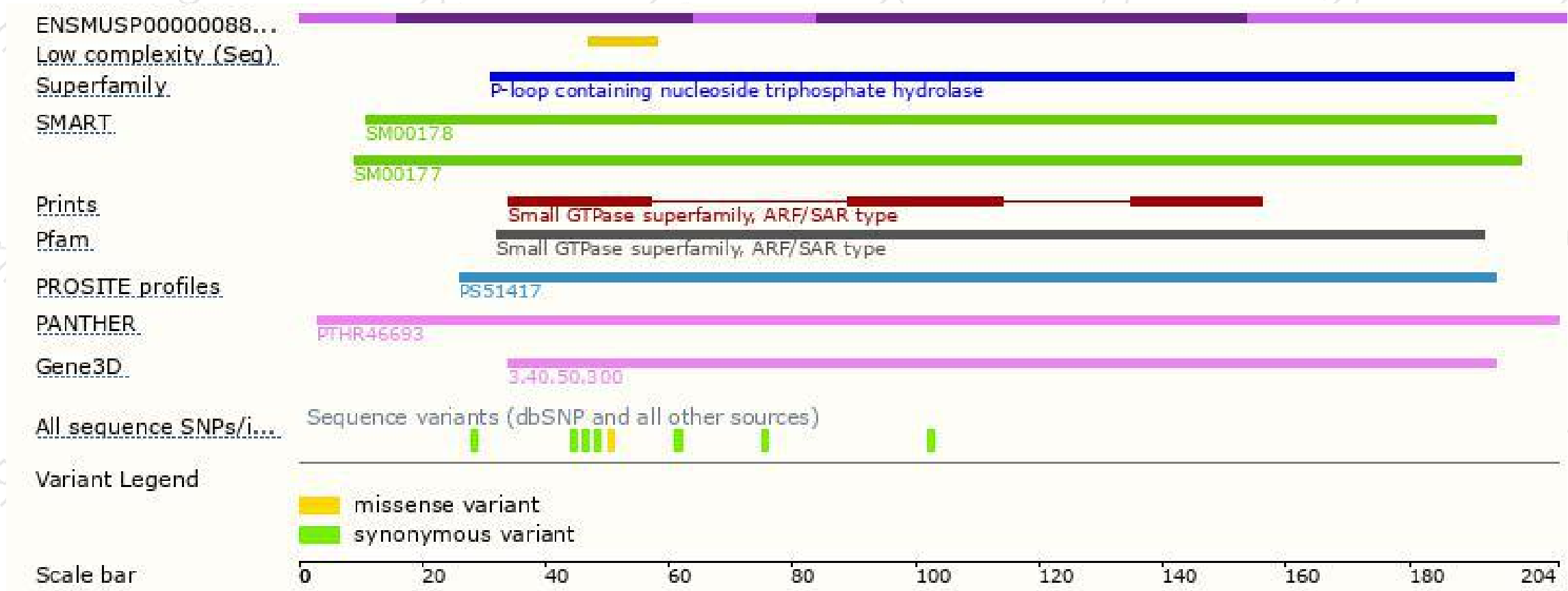
The strategy is based on the design of *Arl15-201* transcript,The transcription is shown below



Genomic location distribution



Protein domain



If you have any questions, you are welcome to inquire.

Tel: 025-5864 1534

